

# PLIOTRON

## DESCRIPTION

The PJ-7 is a high-vacuum tube designed for use in amplification and relay applications. The low grid power and uniformity of characteristics are particularly valuable in many control applications.

## TECHNICAL INFORMATION

*These data are for reference only. For design information refer to specifications.*

## GENERAL CHARACTERISTICS

Number of electrodes . . . . . 3

### Electrical

Filament voltage . . . . . 4.5 volts

Filament current . . . . . 1.1 amperes

Average characteristics when  $e_b = 350$  volts,

$i_b = 4.5$  milliamperes,  $e_f = 4.5$  volts d-c

Grid voltage . . . . . -4 volts

Amplification factor . . . . . 30

Grid-plate transconductance . . . . . 1120 micromhos

Direct interelectrode capacitance

Grid-plate . . . . . 8.5 micromicrofarads

Grid-cathode . . . . . 3.0 micromicrofarads

Plate-cathode . . . . . 4.0 micromicrofarads



**TECHNICAL INFORMATION (CONT'D)**

**Mechanical**

Base .....	medium 4-pin bayonet
Net weight, approx. ....	2 ounces
Shipping weight, approx. ....	3 pounds
Operating position .....	vertical or horizontal with plane of electrodes vertical

**MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS**

**CLASS A AUDIO-FREQUENCY AMPLIFIER AND MODULATOR**

	Typical Operation	Maximum Ratings
D-c plate voltage .....	350	350 volts
Plate dissipation .....	...	7.5 watts
D-c grid voltage .....	-6	... volts
Peak grid swing, approx. ....	6	... volts
D-c plate current .....	2.8	... milliamperes
Load resistance .....	40,000	... ohms
Plate power output, less than 5% second harmonic .....	58	... volts

**CLASS B RADIO-FREQUENCY POWER AMPLIFIER**

*Carrier conditions per tube for use with a maximum modulation factor of 1.0*

D-c plate voltage .....	350	350 volts
D-c grid voltage .....	-10	... volts
D-c plate current .....	32	35 milliamperes
R-f grid current .....	...	2.5 amperes
Plate dissipation .....	9	10 watts
Output, approx. ....	2	... watts

**CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR, PLATE MODULATED**

*Carrier conditions per tube for use with a maximum modulation factor of 1.0*

D-c plate voltage .....	300	300 volts
D-c grid voltage .....	-40	-100 volts
D-c plate current .....	35	40 milliamperes
D-c grid current, approx. ....	8	15 milliamperes
R-f grid current .....	...	2 amperes
Plate dissipation .....	5.5	10 watts
Plate power output, approx. ....	5	... watts

**CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR**

*Key-down conditions per tube without modulation\**

D-c plate voltage .....	350	350 volts
D-c grid voltage .....	-25	-100 volts
D-c plate current .....	35	40 milliamperes
D-c grid current, approx. ....	5	15 milliamperes
R-f grid current .....	...	3 amperes
Plate dissipation .....	6	10 watts
Plate power output, approx. ....	6	... watts

\* Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

**APPLICATION NOTES**

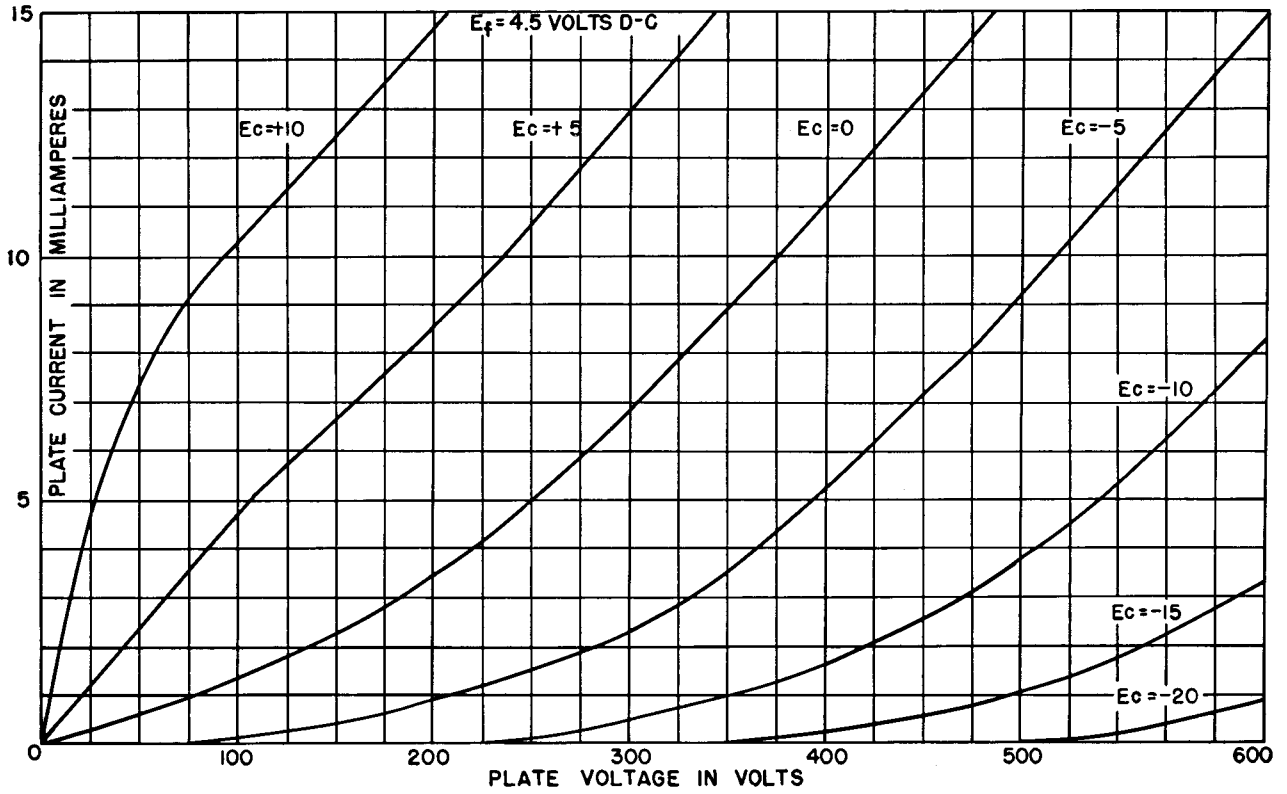
The PJ-7 can be operated at frequencies as high as six megacycles, and may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised (other maximum ratings are the same as shown above). The tabulation

Frequency .....	6	45	170 megacycles
Class B, r-f .....	100	75	50 per cent
Class C, plate modulated or unmodulated .....	100	75	50 per cent

The normal value of grid leak, when the tube is used as an oscillator or r-f power amplifier (Class c), is in the neighborhood of 5000 ohms, although this may be replaced

below shows the highest percentage of maximum plate voltage and power input that can be used up to 170 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

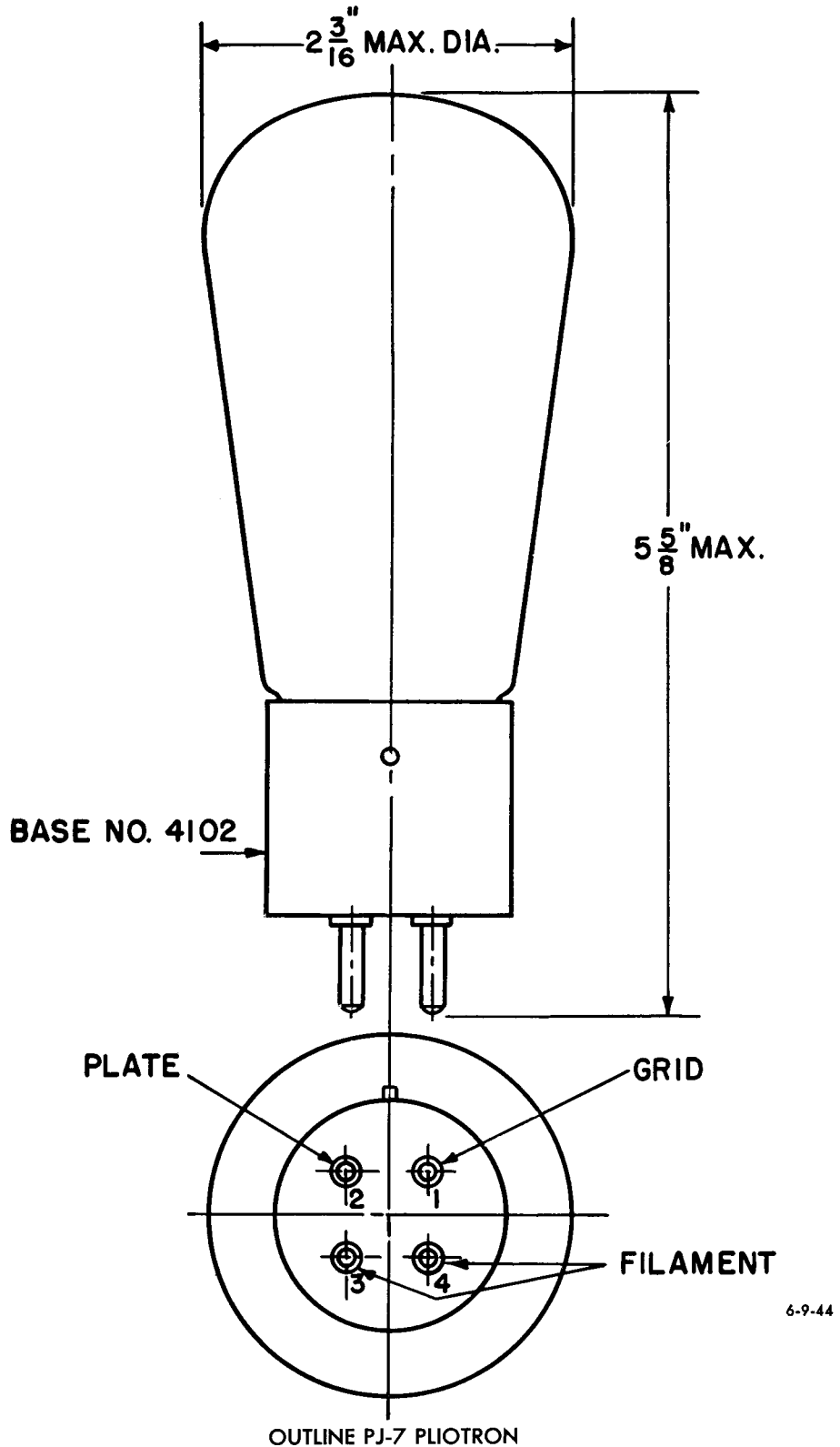
by a suitable fixed bias. If self-bias is used, the cathode resistor should be approximately 600 ohms.



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PJ-7 AVERAGE STATIC CHARACTERISTICS



K-3846047

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